

CLAIMS

1. A method to detect an extracellular mRNA in a bodily fluid, the bodily fluid including a cell phase and a fluid phase, the method comprising:
providing a cell-free fluid phase portion of the bodily fluid; and
5 detecting the extracellular mRNA in the cell-free fluid phase portion of the bodily fluid,
wherein the bodily fluid is saliva.
2. The method of claim 1, wherein the bodily fluid is unstimulated
10 saliva;
3. The method of claim 1 wherein detecting the extracellular mRNA comprises
isolating the extracellular mRNA from the cell-free fluid phase portion of
15 the bodily fluid and
amplifying the extracellular mRNA.
4. A method to perform transcriptome analysis of a bodily fluid, the bodily fluid including a cell phase and a fluid phase, the method comprising
providing a cell-free fluid phase portion of the bodily fluid; and
20 detecting a transcriptome pattern in the cell-free fluid phase portion of the bodily fluid,
wherein the bodily fluid is saliva
5. The method of claim 4, wherein detecting a transcriptome pattern is performed by microarray assay.
- 25 6. The method of claim 5, wherein detecting a transcriptome pattern is performed by high-density oligonucleotide microarray assay.
7. The method of claim 4, wherein detecting a transcriptome pattern is performed by quantitative PCR analysis or RT-PCR analysis.

8. A method to detect genetic alterations in an organ by analyzing a bodily fluid draining from the organ, the bodily fluid including a cell phase and a fluid phase, the method comprising:

- providing cell-free fluid phase portion of the bodily fluid;
- 5 detecting a transcriptome pattern in the cell-free fluid phase portion of the bodily fluid; and
- comparing the transcriptome pattern with a predetermined pattern, the predetermined pattern being indicative of a common transcriptome pattern of normal cell-free fluid phase portion of the bodily fluid,
- 10 the bodily fluid being saliva.

9. A method to detect genetic alteration of a gene in an organ by analyzing a bodily fluid draining from the organ the bodily fluid including a cell phase and a fluid phase, the method comprising:

- providing a cell-free fluid phase portion of the bodily fluid;
- 15 detecting an mRNA profile of the gene in the cell-free fluid phase portion of the bodily fluid; and
- comparing the mRNA profile of the gene with a predetermined mRNA profile of the gene, the predetermined mRNA profile of the gene being indicative of the mRNA profile of the gene in normal cell-free fluid phase
- 20 portion of the bodily fluid,
- the bodily fluid being saliva

10. A method to diagnose an oral or systemic pathology, disease or disorder in a subject, the method comprising:

- providing a cell-free fluid phase portion of the saliva of the
- 25 subject;
- detecting in the provided cell-free saliva fluid phase portion an mRNA profile of a gene associated with the pathology, disease or disorder; and
- comparing the RNA profile of the gene with a predetermined
- 30 mRNA profile of the gene, the predetermined mRNA profile of the gene being indicative of the presence of the pathology, disease or disorder in the subject.

11. The method of claim 10, wherein the disease is a cancer of the oral cavity and/or of oropharynx and the gene is selected from the group consisting of the gene coding for IL8, IL1B, DUSP1, H3F3A, OAZ1, S100P and SAT.

5 12. The method of claim 10, wherein the disease is a cancer of the oral cavity and/or oropharynx and the gene is the gene coding for IL8.

13. The method of claims 12, wherein the disease is oropharyngeal squamous cell carcinoma or head and neck squamous cell carcinoma.

10 14. A method to diagnose an oral or systemic pathology, disease or disorder in a subject, the method comprising:

 providing a cell-free fluid phase portion of the saliva of the subject;

 detecting in the provided cell-free fluid phase portion a transcriptome pattern associated with the pathology, disease or disorder; and

15 15 comparing the transcriptome pattern with a predetermined pattern,

 recognition in the transcriptome pattern of characteristics of the predetermined pattern being diagnostic for the pathology, disease or disorder in the subject.

20 15 The method of claim 14 wherein the disease is a cancer of the oral cavity and/or of oropharynx and transcriptome includes transcripts is selected from the group consisting of transcripts for IL8, IL1B, DUSP1, H3F3A, OAZ1, S100P and SAT.

25 16 The method of claim 14 wherein disease is oropharyngeal squamous cell carcinoma or head and neck squamous cell carcinoma.

17. A method for diagnosing a cancer in a subject, the method comprising:

 providing a bodily fluid of the subject;

detecting in the bodily fluid a profile of a biomarker, the biomarker selected from the group consisting of IL8, IL1B, DUSP1, H3F3A, OAZ1, S100P, SAT, IL6, H3F3A, TPT1, FTH1, NCOA4 and ARCR,

5 comparing the profile of the biomarker with a predetermined profile of the biomarker,

recognition in the profile of the biomarker of characteristics of the predetermined profile of the biomarker being diagnostic for the cancer.

10 **18.** The method of claim 17, wherein the cancer is the oropharyngeal squamous cell carcinoma or head and neck squamous cell carcinoma, the biomarker is selected from the group consisting of IL8, IL1B, DUSP1, H3F3A, OAZ1, S100P and SAT, the bodily fluid is saliva and detecting a profile of a biomarker is performed by detecting the mRNA profile of the biomarker.

15 **[00243] 19.** The method of claim 17, wherein the cancer is the oropharyngeal squamous cell carcinoma or head and neck squamous cell carcinoma, the biomarker is selected from the group consisting of IL6, H3F3A, TPT1, FTH1, NCOA4 and ARCR, the bodily fluid is blood serum and detecting a profile of a biomarker is performed by detecting the mRNA profile of the biomarker.

20 **20.** The method of claim 17, wherein the cancer is the oropharyngeal squamous cell carcinoma or head and neck squamous cell carcinoma, the biomarker is IL6, the bodily fluid is blood serum and detecting a profile of a biomarker is performed by detecting the protein profile of the biomarker.

21. A kit for the diagnosis of an oral and/or systemic pathology, disease, or disorder, the kit comprising:

25 a identifier of a biomarker in a bodily fluid, the biomarker for the pathology disease or disorder, the biomarker selected from the group consisting of IL8, IL1B, DUSP1, H3F3A, OAZ1, S100P, SAT, IL6, H3F3A, TPT1, FTH1, NCOA4 and ARCR; and

a detector for the identifier,

the identifier and the detector to be used in detecting the bodily fluid profile of the biomarker of the method of any one of claims 14 to 16 or 17 to 21, wherein

5 the identifier is associated to the biomarker in the bodily fluid, and the detector is used to detect the identifier, the identifier and the detector thereby enabling the detection of the bodily fluid profile of the biomarker.

22. The kit of claim 21, wherein the disease is oral cavity and oropharyngeal squamous cell carcinoma.

10 **23.** The kit of claim 21, wherein the disease is head and neck squamous cell carcinoma.

24. A method to diagnose an oral and/or systemic pathology disease or disorder, the method comprising: using salivary mRNAs as biomarkers for oral and/or systemic pathology, disease or disorder.

15 **25.** The method of claim 24, wherein the mRNA codifies for IL8, IL1B, DUSP1, H3F3A, OAZ1, S100P, and SAT.

26. The method of claim 25, wherein the disease is oral cavity and oropharyngeal squamous cell carcinoma.

27. The method of claim 25, wherein the disease is head and neck squamous cell carcinoma.